TECHNICAL REPORT
FISHERIES DATABASE CONSULTANCY

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January 28-June 30, 1998

Technical Report
Fisheries Database Consultancy: January 28 - June 30 1998

This report provides a summary of the process of conducting the Tri-National fishermen survey. It begins with a brief summary of the workplan followed by a report of how the project unfolded. It concludes with a brief of the assessment of the strengths and weaknesses of the project, as well as a number of suggestions for future work.

Workplan

The workplan below was generated in consultation with Dr. Heyman in the first week of February.

Methodology Design and Development	
Jan 29 - Feb 10	*Site Visit*:
Jan 30	Develop workplan
Jan 31 - Feb 4	Design draft survey instrument; Design database structure
Feb 5 - 6	Meet with participating NGOs; Test survey instrument and data entry forms
Feb 9 - 22	Generate final drafts of the survey instrument and a completely functional database and interface (in both English and Spanish)
Feb 23	Deliver draft survey instrument and database to Dr. Heyman for distribution to NGO partners
Feb 23 - Mar 6	Pilot surveys by all participating NGOs: to include data collection and data entry
Mar 6 - 10	*Site Visit*: Meet with participating NGOs and discuss modifications to the survey instrument and the database structure and interface. Train NGO members in final data entry procedures.
Data Collection	
Mar 11 - May 8	NGO partners: Data collection and entry. Database Consultant: Data quality checks, development of summary analysis graphs and tables.
Data Analysis	
May 11 - 31	*Site Visit*: Analyze data with Dr. Heyman and NGO partners. Provide technical support for the writing of a summary report for each country, as well as a report summarizing tri-national issues

Project Summary

Methodology Design and Development

The early stages of the project went quite smoothly. The first site visit consisted of several days of close work with Dr. Heyman in designing the survey instrument and the database to house the data. Dr. Heyman presented the goals of the project in a clearly defined manner, and we developed specific sections of the survey instrument to meet those goals. The goals follow:

1. *Determine fishermen demographics* including: age, years fishing, number and types of boats, awareness of existing regulations, percent of time spent fishing, interest in economic alternatives to fishing.
2. *Estimate catch* broken down by the following: species, fishing technique, month, product sold, and price received.
3. *Estimate the state of the resource* on a species by species basis, including reasons for perceived changes, and suggestions for improvements.
4. *Determine levels of support for marine reserves*

Once a draft survey instrument had been developed, the data structure and data entry interface was roughed out in MS Access.

The major technical concern in the design of the database was the language issue. In order to facilitate tri-national analysis the data entry needed to be standardized. To accomplish this, bilingual look-up tables were generated for the following categories of data: occupations, boat types, propulsion types, fish species, fish products sold, months, economic alternatives to fishing, reasons for change in the resource, and possible ways to improve the resource. All of these tables were designed to be open-ended, so NGO members could add unanticipated cases as they arose. However, these tables provided a structure for the final analysis, and the majority of cases were anticipated after in-depth consultation with our NGO partners. The following is an example of these look-up tables:

Gear ID	Spanish	English
ATA	Atarraya	Cast Net
CD	Buceo	Diving
CH	Chango	Trawl Net
HL	Ganchando	Hooking
HLD	Pesca de fondo	Drop Hand Line
HLT	Curicañar	Tow Hand Line
LT	Nasas	Traps
NF	Chinchoro	Seine Nets
NL	Transmallo, Redes	Gill Nets
SF	Bucear con harpon	Spear
SHE	Nasas	Traps
SLL	Palangre	Long Lines

In this table you can see that each gear type is supplied with a unique identifying code that the database used to keep track of it. The codes are invisible to the user, but the database uses them so that data can be entered or analyzed in either Spanish or English.

The one look-up table that proved to be somewhat problematic was the fish species table. This is because different ethnic groups (and sometimes different individuals) in different countries use different terms for the same species. To deal with this problem, Dr. Heyman developed a document with images of each species and its name in a number of different languages.

Initial drafts of the look-up tables, and the "fish book" were developed in our first meeting with the representatives from the participating NGOs in Puerto Barrios on February fifth and sixth. During this meeting, members of FUNDAECO conducted two pilot interviews, and entered some of the data in the database. Members of TIDE and Prolansate were also briefly introduced to the database interface, and entered small amounts of data. It was agreed that revised copies of the survey instrument and the database would be provided to each NGO in mid February, and they would each conduct ten pilot interviews before the sixth of March.

The revised survey and database were presented as scheduled. Additional features added to the user interface based on observing NGO members' use include automatic error warnings, and other restrictions preventing certain types of data entry errors.

During the second site visit the survey instrument, database, and data entry interface were finalized, and members of TIDE and FUNDAECO were given both digital and hard copies, as needed. In addition, the necessary software (MS Access) was installed on computers for both NGOs, and NGO members were given final training in the use of the database. Unfortunately our representative from Prolansate, Mr. Alejandro Andino, was unable to attend the meeting for logistical reasons. Because of this, Dr. Heyman made a trip to Honduras and provided Mr. Andino with copies of the relevant materials and training at a later date.

The only major problem with this stage of the project was that the requisite number of pilot interviews were not conducted by any of the participating NGOs (although TIDE did conduct a couple of pilot interviews). This was partially because of an inability to get the materials to the participants in a timely fashion (due to problems in the communications infrastructure between Belize, Guatemala, and Honduras). As a result the NGO partners were not as familiar with the survey instrument and the database interface as would have been optimal, and thus the final training was not as effective as it would have otherwise been.

Data Collection

As the database consultant, my role in the data collection phase of this project was limited. Dr. Heyman and I did some follow-up interviews to try to assess the quality of our data. In addition, I worked closely with members of all three participating NGOs to try to eliminate data entry errors from the database.

Unfortunately the data collection phase took nearly twice as long as we had planned. The final data did not arrive until mid-June. A wide range of issues including computer hardware failures, lack of computer expertise, and communication breakdowns caused this delay. However, the main reason for this delay seemed to be that those individuals involved in data collection were generally over-committed. This is a factor that should be taken into consideration in future projects. Perhaps the setting of incremental deadlines would encourage NGO members to complete the work in a more timely

fashion, but it may simply be that more time should have been budgeted for this phase of the project.

Analysis

The analysis phase of this project consisted of the generation of summary statistics, graphs, and tables, and the interpretation of that summary information by Dr. Heyman, and members of the participating NGOs. The database structures for generating the summary information were, for the most part, developed before the data had been completely collected. These structures were then modified and adapted based on the input of the NGO members and Dr. Heyman.

The summary information was generated in the database using more than one hundred and ninety queries. This information was then presented in more than twenty-five different types of dynamic graphs, as well as a number of tables. Often queries were linked to graphs in such a way that NGO members could page through the individuals in the database and see summaries about them. For example, the monthly catch data for each species was graphed, and the NGO partners paged through those graphs on the computer and then designated how that information would be grouped for the report.

This type of tool was also used in checking for obvious inconsistencies in the data. For instance, the catch data for every fisherman could be summarized on a species by species and month by month basis in a single graph. Paging through those graphs, it became obvious at times that there was some error in the catch data. NGO members followed up these possible errors by referring back to the original survey instruments, and sometimes by calling the fishermen themselves.

The input of the NGO members in this phase of the project was indispensable. The analysis process involved quite a bit of looking at data summaries that prompted further questions about the data. The NGO partners provided the vast majority of those questions, and their enthusiasm about the results of the analysis was infectious.

The only weakness with the analysis phase of the project was the amount of time that we were able to devote to it. Because of the amount of time that data collection took, we had only three days with each NGO. Thus the analysis was rushed, and the summary documents are incomplete. If possible, further sessions with each NGO and Dr. Heyman should be convened in order to complete a more thorough analysis of the survey results.

Conclusions

Overall I am quite pleased with the results of this project; however, there are a few obviously areas where improvements can be made. I will address those areas first.

To begin with, the time management on this project could have been better. Specifically, the data collection phase of the project took much longer than expected. If similar studies are undertaken in the future, either more time needs to be allocated for this phase, or

more structure needs to be imposed upon it. My feeling is that a little of both is needed. If participating NGOs had had more short-term deadlines, been more closely monitored, and had a little longer overall to complete this phase, I think they could have been more effective at collecting the data. In short, Dr. Heyman and I should have been in closer contact with the individuals collecting the data. However, this may be a problem in all studies that encourage local buy-in, as a balance needs to be struck between allowing local interests to control the project, and imposing structure to provide international credibility.

Another issue of concern is the variability in data quality. While overall I believe that the data is reasonably good, the quality of surveys varied depending on the individual administering the survey. In all three NGOs there was a noticeable difference between the data collected by different surveyors. In some cases we eliminated individual surveys from the analysis on the advice of the participating NGO members themselves. The only way to prevent these kinds of problems is through a more thorough training process for the individuals conducting the surveys. In this case we trained one individual from each NGO, and allowed them to train the remaining surveyors. It is expensive to train all individuals participating in a study like this, and I am not convinced that it is worth the cost. However, our overall quality may well have improved if the pilot surveys had been completed as originally planned.

The final major improvement that I can suggest for this project, or similar projects in the future, is to hire a consultant who can speak Spanish. My lack of language skills was a barrier at times. In spite of this, Dr. Heyman did an admirable job translating, and I felt that I had a good working relationship with participating NGO members.

While the purpose of this report is largely to point out areas for possible improvement in this study, I want to emphasize that I have a very positive overall impression of the project. To begin with, the substantive findings seem to be quite exciting. Members of all three NGOs were enthusiastic about the analysis, and excited to report the results to their local fishermen. I was impressed with the competency of members from all three NGOs; specifically Giovani Zamora from FUNDAECO, Alejandro Andino from Prolansate, and Wil Mahia from TIDE. All three organization bought into the project, and thus put major effort into ensuring that their roles were well executed.

Finally, I cannot say enough about the remarkable job that Dr. Heyman has done in facilitating the communication and cooperation the three organizations. There has obviously been a substantial investment in laying the groundwork for this project, in terms of opening lines of communication, and building trust between the players in all three nations. I believe that with a little more time and effort invested in the analysis of the collected data, they can create a powerful product.

References

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